

OIL POLLUTION PREVENTION LESSON TOPIC GUIDE

RECOMMENDED INSTRUCTOR:

Environmental Safety Officer, Engineer Officer,
Fuels Officer, Main Propulsion Assistant, Oil
King, Engineering Officer of the Watch

TRAINING PERIOD: 45 Minutes

INSTRUCTIONAL REFERENCES:

1. OPNAVINST 5090.1B (CH-2), Environmental and Natural Resources Program Manual
2. Engineering Operational Sequencing System, EOSS
3. Aviation Fuel Oil Sequencing System, AFOSS

ENABLING OBJECTIVES:

1. Upon completion of this topic, students will be able to predict consequences of actions taken during fuel transfers and shipboard evolutions.
2. Upon completion of this topic, students will be able to identify frequent causes of oil spills.
3. Upon completion of this topic, students will be able to describe key policies and terms supporting oil spill prevention.

4. Upon completion of this topic, students will be able to identify ongoing initiatives using approved EOSS and AFOSS procedures.
5. Upon completion of this topic, students will be able to identify best practices to help prevent oil spills.

INSTRUCTIONAL MATERIAL:

Oil Pollution Prevention Awareness Video –
(18 minutes)
PowerPoint Presentation covering OSS Pollution
Prevention Initiatives

NOTES TO THE INSTRUCTOR:

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DISCUSSION TOPIC

RELATED INSTRUCTOR ACTIVITY

1. INTRODUCTION

- A. Paraphrase training objectives.
- B. State the objective of oil spill prevention initiatives: The Navy is charged with being good environmental stewards while carrying out its mission. Protection of the environment and compliance with environmental laws and regulations are critical to maintaining operational flexibility required for mission accomplishment. The prevention of oil spills must be one of our top priorities to be successful.
- C. Top causes of oil spills have been:
 - Failure of personnel to follow established procedures
 - Improper/Inadequate training
 - Hose handling errors
 - Tank monitoring errors by personnel
 - Valve misalignments
 - Valve & piping system failures
 - Hose failures
 - Tank level indicator failures

NOTE: Factors most cited for personnel errors were lack of accurate procedures and training.

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DISCUSSION TOPIC

RELATED INSTRUCTOR ACTIVITY

- D. These specific causes were targeted to reduce the number and volume of spills and raise environmental awareness.

2. OPERATIONAL SEQUENCING SYSTEMS (OSS) PROCEDURES:

- A. Several OSS types may be installed on board.
- B. EOSS and AFOSS updated to reflect ongoing Pollution Prevention Initiatives.
- C. Increase environmental awareness
 - Incorporate notes, cautions and warnings to reflect potential environmental hazards associated with various procedures
 - Differentiate fueling limits between AT-SEA and IN PORT refueling
- D. Improve procedures
 - Validate system diagrams and procedures to reflect “as is” condition
 - Update procedures to incorporate environmental awareness policies

Examples: Engineering Operational Sequencing System, Aviation Fuels Operational Sequencing System, Ballasting Operational Sequencing System (BOSS)...

Show: PowerPoint slide with Master Checklist

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RELATED INSTRUCTOR ACTIVITY

- Limit in port fuel oil tank fill capacity for all tanks that discharge directly overboard/topside (80% in port, 95% at-sea)
 - Increased level of detail for various “Oily Waste” evolutions
- E. Master checklists have been developed to establish a preliminary review of your system PRIOR to operation.
- F. The checklist is a fundamental step in improving situational awareness before the evolution is conducted.
- G. Examples of what steps are in the checklist are as follows:
- Prepare plan for approval by Chain of Command
 - Checking tank levels and alarms
 - Checking communication circuits for proper operation
 - Conduct prebrief with team

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3. TERMS AND DEFINITIONS:

- A. **Spill** – An accidental or unpermitted discharge into or upon the water.
- B. **Harmful Quantity** – Any amount that creates a sheen, sludge, film, emulsion or discoloration upon the surface of the water.
- C. **Sheen** – An iridescent (rainbow) appearance on the surface of the water.
- D. **Emulsion** – One liquid suspended into another liquid.
- E. **Oily waste** – Oil mixed with water or other fluids such that the mixture is no longer useable.
- F. **Oil** – ANY petroleum based fluid or semisolid including crude oil, liquid fuels, lubricating oil, waste oil, oil sludge and oil refuse.

Also included are synthetic-based lubricating oil, transmission products, oil-based paints and cooking oils.

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4. VIDEO – OIL POLLUTION PREVENTION AWARENESS:

Introduce the video that will highlight current oil pollution prevention awareness initiatives and apply them to everyday work.

Recommend students look at the video from their daily work perspective to see where and what may be applied to their work center daily environment.

5. BEST PRACTICES:

- A. Understanding your role and responsibility in spill prevention, recognizing that it's everyone's "job" to be alert to situations that could cause oil spills.
- B. Conducting fueling prebriefs well in advance. Include all involved personnel and cover Operational Risk Management (ORM) considerations.

DISCUSS: For each item: question audience as to how these practices were or were not carried out in the video.

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DISCUSSION TOPIC	RELATED INSTRUCTOR ACTIVITY
C. Carefully monitor tank levels during transfer evolutions.	
D. Regularly test and maintain systems and equipment.	
E. Monitor bilge spaces to ensure they are dry and free of oil.	
F. Properly utilize drip trays, blocked scuppers on deck and hose/connection caps.	
G. Conduct oil evolutions during normal working hours.	
H. Be alert to the sight and smell of spills and know what to do next (who to contact, where the containment kits are located, etc.).	
I. Have a spill plan on board and know what it says.	
J. Verify proper system valve alignment by qualified and designated personnel.	
K. Establish and maintain continuous and proper communication circuits.	

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DISCUSSION TOPIC

RELATED INSTRUCTOR ACTIVITY

6. DISCUSSION QUESTIONS:

A. Identify several best practices you see on board your ship.

B. What is a spill?

An accidental or unpermitted discharge into or upon the water.

C. What is a sheen?

An iridescent (rainbow) appearance on the surface of the water.

D. What is a harmful quantity?

Any amount that creates a sheen, sludge, film, emulsion or discoloration upon the surface of the water.

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7. SUMMARY:

- A. The goal is zero oil spills. Every member of the crew plays a vital role in this effort. You may be the one person who spots a problem, whether on the main deck, flight deck, pump room, or any number of other possible locations throughout the ship. In virtually every spill incident, as in most mishaps, a series of mistakes occur that eventually lead to the spill. Often, if any one of these were caught and corrected, the end results would have been avoided.
- B. Be alert to what's going on around you. If something seems incorrect, notify someone right away. A minor delay to investigate a possible problem is infinitely better than the potentially disastrous results of any oil spill.

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RELATED INSTRUCTOR ACTIVITY

8. POWERPOINT SLIDES:

OSS Pollution Prevention Initiatives

- **Increase environmental awareness**

- Incorporate notes, cautions and warnings to reflect potential environmental hazards associated with various procedures.
- Differentiate fueling limits between AT-SEA and IN PORT refueling.
- Developed Fleet standard Master Checklists to ensure proper risk assessment is conducted and reported to the chain of command prior to conducting evolution.

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DISCUSSION TOPIC

RELATED INSTRUCTOR ACTIVITY

OSS Pollution Prevention Initiatives

•**Improve procedures**

- Validate system diagrams and procedures to reflect “as is” condition.
- Update procedures to incorporate environmental awareness policies
- Limit in port fuel oil tank fill capacity for all tanks that discharge directly overboard/topside (80% in port, 95% at-sea).
- Increased level of detail for various “oil/oily waste” evolutions.

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OPERATIONAL PROCEDURE FUEL OIL SYSTEM CHECKLIST		O. P. NO. FOCL
WATCH AREA OIL KING		
NOTES: 1. The following statements are general in nature and are intended to serve as a guide for preparation to refueling/defueling/transferring fuel evolution. All additional requirements or details shall be added to this list by the Engineer Officer. It must be remembered, that these are minimum requirements and there may be other requirements of the assigned personnel, based on the situation as it develops. 2. Procedures for refueling/defueling will commence at least 36 hours prior to start of evolution during regular working hours. 3. Procedures for internal transfer of fuel will commence at least 2 hours prior to start of evolution during regular working hours.		
USER NOTES		
1. Prepare refueling/defueling/transfer plan and forward for approval via the chain of command. _____ 2. Ensure all tank level indicator panels are energized and alarm panels are tested. Verify accuracy of all indicators by comparing with actual tank soundings. _____ 3. Inventory and test supply of sound powered phones/IVCS/radios. _____ 4. Inventory and inspect all fuel sounding tapes and deck wrenches. _____ 5. Verify that all sounding caps on tanks not designated to receive fuel are secured tightly. _____ 6. Ensure bilge, drip pans, and fuel oil transfer manifolds are free of oil. _____		
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USER NOTES	FUEL OIL SYSTEM CHECKLIST
	<p>7. Ensure all flange shields are in place. _____</p> <p>8. Ensure all valve wheels are installed and labelled and remote operators are installed and operational. _____</p> <p>9. Ensure all locks and lock wire seals are in place. _____</p> <p>10. Identify/inspect access for fuel oil storage and service tanks and overflow areas are free of debris and accessible. _____</p> <p>11. Inventory all approved oil spill containment kits and place all containment kits and additional rags on station. _____</p> <p>12. All scuppers and deck drains in the area of fuel tank vents, overflows and refueling connections shall be blocked during all fueling evolutions. _____</p> <p>13. Muster and brief all refueling/defueling/ transfer team members on responsibilities and actions for each watchstation IAW approved watchbill. _____</p> <p>14. Ensure all refueling/defueling/ transfer hose connections not in use are shut and flanged. _____</p> <p>15. Verify all interlock valves and ballast/stripping manifold valves are locked shut. _____</p> <p>16. Obtain "Prior to refueling/defueling/transfer" draft report from D.C. Central. _____</p>
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USER NOTES	FUEL OIL SYSTEM CHECKLIST
	<p>17. Conduct sound powered/IVCS/radio checks. Take initial tank soundings of tanks being refueled/defueled. _____</p> <p>18. Review Engineer Officer standing and lightoff orders as applicable. _____</p> <p>19. Report all discrepancies to the Engineer Officer for determination to proceed with the fuel evolution when authorized by the Commanding Officer. _____</p>
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